Space Weather Forecast

Issued on Wednesday, 13 March 2024 at 01:21 Local

This forecast provides a four day assessment of space weather events. The probabilities stated below are for reaching or exceeding the given levels. For more information about space weather impacts please see the Met Office Space Weather Scales https://www.metoffice.gov.uk/weather/learn-about/space-weather/uk-scales

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Space Weather Forecast Headline: Daily chance of Moderate-class flares (Minor/Moderate (R1/R2) Radio Blackouts), reducing into the UTC weekend.

Analysis of Space Weather Activity over past 24 hours

Solar Activity: Solar activity has been Low, with isolated Common-class X-ray activity recorded. The peak of these flares was a Common-class flare at 12/1135UTC from the largest and most complex group on the facing side. This sunspot group showed some continued development as it approaches the western limb. There are seven other sunspots on the disc, two of which in the eastern hemisphere showing some recent growth. The rest of the spots are small and simple.

There were no earth directed Coronal Mass Ejections (CME) in the past 24 hours.

Solar Wind / Geomagnetic Activity: Solar wind speeds were fairly steady between background and slightly elevated in the past 24 hours. The Interplanetary Magnetic Field (IMF) was stable and weak, with the important north-south component also varying weakly. Geomagnetic activity was Quiet (Kp0-2) through the period.

Energetic Particles / Solar Radiation: No solar radiation storms were observed, high energy (greater than 10MeV) proton flux remained at background throughout.

Four-Day Space Weather Forecast Summary

Solar Activity: There is a daily chance of Moderate-class flares from the largest sunspot region. This sunspot is expected to remain on the Earth-facing side until the end of the current UTC working week, whereupon the risk of Moderate activity should fall.

Solar Wind / Geomagnetic Activity: A CME associated with the Moderate-class flare from 10 March may pass Earth as a glancing blow later on Day 1 (13 Mar) or perhaps during Day 2 (14 Mar).

Coronal hole fast wind activity is likely to be modest in the period, with a weak connection possible on Days 1- 2 (13-14 Mar).

All things considered, the geomagnetic forecast should mostly be Quiet to Unsettled (Kp0-3) with a chance of Active (Kp4) intervals during the first few days, with low confidence of G1/Minor Storm intervals (Kp5) should the 10 March CME and coronal hole fast stream materialise.

Energetic Particles / Solar Radiation: High energy proton flux is expected to persist at background or close to background levels, with a very slight chance of S1 Minor Solar Radiation Storms, with the main risk from the largest sunspot region.

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Geomagnetic Storms:

Geo-Magnetic Storm Probability (Exceedance)	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Minor or Moderate	G1 to G2	No	5	10	5	1
Strong	G3	No	1	1	1	1
Severe	G4	No	1	1	1	1
Extreme	G5	No	1	1	1	1

Radio Blackouts - X Ray Flares:

X Ray Flares Probability	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	R1-R2 M Class	No	30	30	20	20
Very Active	R3 to R5 X	No	5	5	1	1

Solar Radiation Storms - (High Energy Protons):

Radiation Storms Probability (Exceedance)	Level (cm^{-2} sr^{-1} s^{-1})	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	≥ S1	No	5	5	5	5
Very Active	≥ S3 *	No	1	1	1	1

* S3 ≥ 10 MeV ≥ 1000 pfu and / or ≥ 50 MeV ≥ 10 pfu. (pfu = $cm^{-2}sr^{-1}s^{-1}$)

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